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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/762,290
Filing Date: January 23, 2004
Appellant(s): RAMARGE ET AL.

Ramarge et al
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 6/11/08 appealing from the Office action mailed August 1, 2007.

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(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,218,508	Doone	06-1993
5,842,096	Mabbott	11-1998
6,008,975	Kester et al	06-1993
4,298,900	Avdeenko et al	11-1981

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

The following grounds of rejection are applicable to the appealed claims and are expressly stated in the Final Rejection (filed on August 1, 2007). No new grounds of rejection are being presented and the following grounds of rejection are hereby repeated below for the convenience of the Appellants and the BPAI:

Claim Rejections - 35 USC § 103

A. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

B. Claims 8, 9, 12, 14-16, 33, 36, 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doone (US 5,218,508).

Regarding claim 8, Doone teaches a process of making electrical surge arrester/diverter (Col. 6, lines 34+), comprising:

- providing an electrical module assembly (Fig. 1, 1) including at least one metal oxide varistor (MOV) disk (Fig. 1, 2) to which a reinforcing structure (Fig. 1, 5) has been applied;
- wrapping the electrical module assembly with shrink film (Fig. 1, 6; col. 6, lines 50-57);

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- heating the shrink film (Col. 6, line 51) such that the shrink film shrinks and applies a compressive force to the electrical module assembly; except for having the heat shrink film compacting the wrapped electrical module assembly, and
- curing reinforcing structure of the wrapped electrical module assembly at a temperature at which the shrink film no longer applies a compressive force due to its later removal (Col. 6, line 52) or tight interface between heat shrink (Fig. 1, 6; col. 6, lines 65-68) and plastic shell (Fig. 1, 5) as the sealant resin is cured (Col. 6, line 51).

It would be obvious to one of ordinary skill in the art at the time the invention was made to have the heat shrink film compacting the wrapped electrical module assembly in order to ensure that the interface between the outer housing of heat shrink material (Fig. 1, 6; col. 6, lines 66-69) and the reinforced plastic shell is void free and impervious to moisture penetration).

Regarding claim 9, Doone teaches that the shrink film is a polymeric mylar film or the like (Col. 6, line 51).

Regarding claims 12 and 14, Doone teaches that the temperature at which the wrapped electrical module assembly is compacted is of a different magnitude than the temperature at which the wrapped electrical module assembly is cured due to different materials between the shrinking tape and the sealant resin (Col. 6, lines 50-52) and due to the later step of removing the shrinking tape, which stops from further shrinking at certain temperature and therefore stops exercising further compressive force to the module.

Regarding claim 15, Doone teaches a process of making electrical surge arrester/diverter including the heating of the shrinking tape and heat curing of the resin, which reads on applicants' claimed invention.

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It would be obvious to one of ordinary skill in the art at the time the invention was made to have a cooling step after a heating step in order to handle the module.

Regarding claim 16, Doone teaches the removal of the shrinking tape (Col. 6, line 52).

Regarding claim 33, Doone teaches that the wrapping of the electrical module assembly with shrink film comprises attaching shrink film (Col. 6, line 50) to the electrical module assembly.

Regarding claim 36, Doone teaches that the wrapping of the electrical module assembly with shrink film (Col. 6, line 50) includes the securing the wrapped shrink film to the electrical module assembly due to heating.

Regarding claim 37, Doone teaches that the compacting of the wrapped electrical module assembly includes the heating (Col. 6, lines 50 & 51) of the shrink film such that the shrink film shrinks and applies a radially compressive force to the electrical module assembly.

Regarding claim 39, Doone teaches the wrapping of the electrical module assembly with shrink film (Fig. 1, 6) comprising the attaching of the shrink film to an end of the electrical module assembly (Fig. 1, area 11) and securing the shrink film at an opposite end of the electrical module assembly with end caps (Fig. 1, 8).

C. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doone in view of Mabbott (US 5,842,096).

Regarding claims 10 and 11, Doone teaches a process of making electrical surge arrester/diverter including the heating of the shrinking tape and heat curing of the resin (Col. 6, lines 50 & 51), which reads on applicants' claimed invention.

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Mabbott teaches a method of printing color image onto a surface with the application of shrinking tape with the characteristics of film shrinkage at 170 degrees Celsius for 30 minutes (Col. 7, lines 27 & 28) as Kaladex 2000, a most preferred shrinking material.

It would be obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Doone by applying the shrinking tape with its characteristics, as taught by Mabbott and not its general structure, in order to facilitate and improve manufacturing process due to its preferred quality of material.

D. Claims 13, 18-22, 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doone in view of Kester et al (US 6,008,975).

Regarding claims 13, 34 and 35, Doone teaches a process of making electrical surge arrester/diverter including the application of the shrinking tape to cover the sealant resin (Col. 6, lines 50 & 51), which reads on applicants' claimed invention; except for having a spiral tape/film as shrink tape/film.

Kester et al teach a method of making a self-compressive surge arrester module with a spiral tape (Fig. 4, 28) wrapping around the module from one end to the other at constant pressure, in order to wrap the fibrous tape and internal resin layer (Fig. 4, 24 & 250).

It would be obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Doone by applying the wrapping tape, as taught by Mabbott and not its general structure, in order to cover completely the sealant resin.

Regarding claim 18, Doone teaches a process of making electrical surge

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arrester/diverter including the application of the shrinking tape to cover the sealant resin (Col. 6, lines 50 & 51), which reads on applicants' claimed invention.

Kester et al teach a method of making a self-compressive surge arrester module with a reinforcing structure (Fig. 4, 24) over the sealant resin (Fig.4, 25) and around the module assembly (Fig. 4, 10), in order to strengthen the electrical module assembly.

It would be obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Doone by applying the reinforcing structure, as taught by Mabbott, in order to strengthen the electrical module assembly.

Regarding claim 19, Kester et al teach that the compressing the electrical module assembly comprises compressing the electrical module assembly using pressure of 250 pounds or more or approximately 0 to 1500 psi (Col. 7, lines 30-32).

Regarding claim 20, Kester et al teach that the preparing of the electrical module assembly comprises heating the electrical module assembly to a surface temperature of approximately 60 degrees Celsius (Col. 8, lines 52 & 53).

Regarding claim 21, Kester et al teach that the reinforcing structure (Fig. 4, 24; col. 6, lines 35-40) is a pre-impregnated fiber composite.

Regarding claim 22, Kester et al teach the maintaining of the electrical module's compression through curing of the reinforcing structure (Col. 7, lines 11-18).

E. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doone in view of Avdeenko et al (US 4,298,900).

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Doone teaches a process of making electrical surge arrester/diverter including the heating of the shrinking tape and heat curing of the resin (Col. 6, lines 50 & 51) with the MOV disk (Fig. 1,2) within the electrical module assembly (Fig. 1, 1), which reads on applicants' claimed invention.

Avdeenko et al teach a process of making overvoltage protective device (Figs. 6-8), comprising the steps of: axially compressing (Fig. 6, 50) the electrical module assembly and maintaining the axial compression of the electrical module assembly through curing (Fig. 7, 48) of the reinforcing structure in order to have an improved operational reliability (Col. 3, lines 35-37).

It would be obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Doone by applying the axial compression and curing of the reinforcing structure, as taught by Avdeenko et al, in order to have an improved operational reliability.

(10) Response to Arguments

A. Rejection of claims 8, 9, 12, 14-16, 33, 36 37 and 39 under 103(a) as being unpatentable over Doone (Pages 2-4):

Appellants assert that Doone does not teach or suggest the limitation of "curing reinforcing structure of the wrapped electrical module assembly at a temperature at which the shrink film no longer applies a compressive force (Claim 8, last 2 lines; Pages 3-4 of the Brief). In response to the remarks, the examiner provides the counter-arguments as below:

In the arguments, Appellants do not specify the exact value of "the temperature or the compressive force" to be cited in the claims to clarify the claimed invention. From these claimed

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language perspectives and in view of the recent Supreme Court's decision in the *KSR* case, 72 FR 57526, where in the guidelines seven possible rationales are laid out for an obviousness rejection: "(A) Combining prior art elements according to known methods to yield predictable results; (B) Simple substitution of one known element for another to obtain predictable results; (C) Use of known technique to improve similar devices (methods, or products) in the same way; (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; (E) 'Obvious to try'--choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; (F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art; (G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention." *Id.* at 57529, the rejection of these claims under 103(a) is applied, especially with the rationale (G), where the prior art Doone teaches, as an alternative process, the steps of:

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- a) wrapping the arrester with its pre-preg material (Fig. 1, 5; Col. 6, lines 40 & 50) or reinforcing structure, comprising a resin impregnated textile fabric (Col. 6, lines 41 & 42);
- b) wrapping the pre-preg wrapping in a heat-shrink tape of Mylar (Fig. 1, 6; Col. 6, lines 50 & 51) or shrink film;
- c) heat-curing the resin (Col. 6, line 51); and
- d) finally removing the shrinking tape (Col. 6, line 52).

From these consecutive steps or limitations of Doone, it would be obvious to a person of ordinary skill in the art to understand that during the step (c) of heat-curing the resin, the heat-shrink tape shrinks, and thus creates a compressive force due to its shrinking effect. Then once the temperature for heat curing stops, the shrinking process of the shrink film stops, alleviating the compressive force, which is no longer generated by the shrinking effect of the shrink tape. Doone further teaches the removing of the shrunk tape, which completely frees the reinforcing structure or pre-preg wrapping from the shrunk tape. Therefore, Doone at a minimum teaches the claimed limitation of “curing reinforcing structure of the wrapped electrical module assembly at a temperature at which the shrink film no longer applies a compressive force”.

Furthermore, Appellants assert different temperatures for the shrinking tape to be applied in the claimed invention (Remarks, page 4) as being specified in the disclosure such as “a range of temperatures below the melting temperature of the shrink film within which the shrink film applies a compressive force and above a threshold temperature, the shrink film ceases to apply a compressive force” (Page 4, 1st paragraph), “curing at this temperature prevents resin within the reinforcing structure from being improperly driven into interfaces between elements of the

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electrical module assembly” (2nd paragraph). In response to Appellants' assertions that the reference fail to show certain features of Appellants' invention, it is noted that the features upon which Appellants rely (i.e., a range of temperatures below the melting temperature of the shrink film ...) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding the obviousness rejection of Claim 9 (Remarks, page 5), Appellants require all limitations to be found in the cited reference. Again, with reference to the recent Supreme Court's decision in the *KSR* case, especially with the rationale (G) as shown above, the obviousness rejection under 103(a) by Doone is proper because Doone does teach the shrink film as polymeric mylar film (Fig. 1, 5); except for having the shrink film as bi-axially oriented polypropylene film. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have the shrink film as bi-axially oriented polypropylene film because Appellants have not disclose that having the shrink film as bi-axially oriented polypropylene film provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Appellants' invention to perform equally well with a shrinkable mylar film because it creates a compressive force by shrinking as well. Therefore, it would have been an obvious matter of design choice to modify Doone to obtain the invention as specified in Claim 9.

Regarding the obviousness rejection of Claim 12 (Remarks, page 5), Appellants assert that Doone do not teach that the temperature at which the wrapped electrical module assembly is compacted is of different magnitude than the temperature at which the wrapped electrical

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module assembly is cured. In response to these arguments, Doone teaches that the pre-preg material (Fig. 1, 5; Col. 6, lines 40 & 50) or reinforcing structure to be cured is of a resin impregnated textile fabric (Col. 6, lines 41 & 42) while the heat-shrink film or the wrapping film of the pre-preg material is a heat-shrink tape of different material such as Mylar (Fig. 1, 6; Col. 6, lines 50 & 51) therefore they react at different temperature and Doone at a minimum teaches the limitation of claim 12.

B, C and D. Rejection of claims 10 and 11 under 103(a) as being unpatentable over Doone in view of Mabbott (Page 6), rejection of claims 13, 18-22, 34 and 35 under 103(a) as being unpatentable over Doone in view of Kester (Page 6) and rejection of claim 38 under 103(a) as being unpatentable over Doone in view of Avdeenko (Page 7):

Appellants cite the same arguments with respect to the limitation of “the temperature at which the shrink film no longer applies a compressive force”, therefore the responses by the Examiner herein for substantially the same reasons as provided above, are incorporated herein and made a part hereof and the rejection of Claims 10, 11, 13, 18-22, 34, 35 and 38 are maintained.

In summary, it appears that Appellants fail to recognize the scope of the claims when judged in view of Doone, Mabbott, Kester and Avdeenko. (Cf. MPEP 2111 and *In re Geuns*, 26 USPQ 2nd 1057 (Fed. Cir. 1993)) and the examiner offers the Appellants to incorporate the limitation of the “Allowed Subject Matter” of claim 17 to the independent claim in order to clarify the claimed invention with respect to the specification and to avoid any

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infringement or litigation with other claimed inventions where it is well known that a shrink tape shrinks a certain temperature while creating certain compressive force.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Phan Thiem/
Examiner, Art Unit 3729

August 29, 2008

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